

Patent Claims

1. Method for manufacturing a component (1) comprising a base body (2) which is at least partially lined with plastic, said component (1) being in particular a hybrid component for a transverse beam of a vehicle or a front-end component in which the base body (2) is formed from at least two elements (2a, 2b) which can be connected to one another at at least one connection point (8a, 8b, 8c, 8d), the inner wall of the base body (2) being lined with plastic (4) in such a way that a cavity (H) is formed in the region of one of the connection points (8a, 8b) between the connection point (8a, 8b) and the plastic (4).
2. The method as claimed in claim 1, in which the size of the cavity (H) is predefined as a function of the type of connection point (8a, 8b) and/or the thickness of the plastic.
3. The method as claimed in claim 1 or 2, in which the cavity (H) has a minimum distance (a), in particular with a sufficiently large heat conduction path (S), between the connection point (8a, 8b) and the plastic (4) of at least 0.8 mm and at most 25 mm.
4. The method as claimed in one of claims 1 to 3, in which the elements (2a, 2b) are connected to one another in a mechanical and/or materially joined fashion, in particular by welding, bonding, soldering, clinching, chamfering, caulking or by means of the integrally molded, in particular integrally injection molded, plastic (4).
5. The method as claimed in one of claims 1 to 4, in which the base body (2) is coated, at least partially

with plastic (4), in particular encapsulated by injection molding or foam encapsulated.

6. The method as claimed in claim 5, in which the
5 base body (2) is pressure molded with a predefined design by means of injection pressure.

7. The method as claimed in claim 5 or 6, in which
10 the base body (2) is inserted into a shaping and joining tool (10) and is at least partially or completely premolded by closing the shaping and joining tool (10).

8. The method as claimed in one of claims 5 to 7, in
15 which the base body (2) is premolded in the shaping and joining tool (10) by introducing at least one molding element (12, 14), for example a die, which produces a shape.

20 9. The method as claimed in one of claims 5 to 8, in which the base body (2) is pressure molded by pressing and/or pressing through the molding element (12) into a predetermined final form.

25 10. The method as claimed in one of claims 1 to 9, in which the plastic (4) is separately premolded and subsequently inserted into the base body (2).

30 11. The method as claimed in one of claims 1 to 10, in which the base body (2) is at least partially provided with plastic (4) on the inside and/or outside.

12. The method as claimed in one of claims 1 to 11, in
35 which the plastic (4) is applied in a single layer or multiple layers and/or with a thickness (d) which varies in certain areas.

13. The method as claimed in one of claims 1 to 12, in which the base body (2) is provided with a plastic structure (K), in particular with a plastic reinforcing structure, in particular internal ribbing or with a plastic guiding structure, in particular a flow element.

14. The method as claimed in one of claims 1 to 13, in which the plastic (4) is introduced in a single component or multicomponent injection molding method.

15. The method as claimed in one of claims 1 to 14, in which the plastic (4) is applied with a thickness (d) of 0.8 mm to 10 mm.

16. The method as claimed in one of claims 1 to 15, in which a base body (2) which is formed from a metal, lightweight metal or its alloys, in particular aluminum, magnesium, titanium or refined steel, with a wall thickness of 0.4 mm to 2.0 mm is used.

17. The method as claimed in one of claims 1 to 16, in which the base body (2) is lined in certain areas with a physically or chemically foamed material, in particular with a varying wall thickness.

18. The method as claimed in one of claims 1 to 17, in which the base body (2) is molded with a wall thickness which varies in certain areas.

19. A device (V) for manufacturing a component (1) comprising a base body (2) which is at least partially lined with plastic, said component (1) being in particular a hybrid component for a transverse beam of a vehicle, comprising a shaping and/or joining tool (10) with a shaping element (12) in which the base body (2) which comprises at least two elements (2a, 2b) can be arranged and shaped or joined at least partially or

completely by closing the shaping and/or joining tool (12), it being possible subsequently to form a cavity (H) between the connection point (8a, 8b) and the plastic (4) when plastic is introduced into the base body (2) in the region of a connection point (8a, 8b) of the two elements (2a, 2b) of the base body (2).

20. The device as claimed in claim 19, the shaping and/or joining tool (10) having a side, in particular an inner wall, which produces the shape corresponding to the contour of the base body (2).

21. The device as claimed in claim 19 or 20, the shaping and joining tool (10) being designed to coat the base body (2) with plastic (4) on one side or both sides.

22. The device as claimed in one of claims 19 to 21, the shaping and/or joining tool (10) being embodied in one piece or a plurality of pieces.

23. The device as claimed in claim 22, the shaping and/or joining tool (10) comprising an upper tool and/or a lower tool (10a, 10b).

24. The device as claimed in claim 23, the upper tool and/or lower tool (10a, 10b) being embodied in one piece or a plurality of pieces.

25. The device as claimed in one of claims 19 to 24, the shaping and/or joining tool (10) being an open/close or a slider tool.

26. A component, in particular a hybrid component, for a transverse beam of a vehicle, comprising a base body (2) which is at least partially lined with plastic and which is formed from at least two elements (2a, 2b) which can be connected to one another at at least one

connection point (8a, 8b, 8c, 8d), the base body (2) being provided on the inner walls with plastic (4) in such a way that a cavity (H) is formed in the region of one of the connection points (8a, 8b) between the
5 connection point (8a, 8b) and the plastic (4).

27. The component as claimed in claim 26, in which the size of the cavity (H) is determined as a function of the type of the connection point (8a, 8b) and/or the
10 thickness (d) of the plastic (4).

28. The component as claimed in claim 26 or 27, in which the cavity (H) has a minimum distance (a) between the connection point (8a, 8b) and the plastic (4) of at
15 least 0.8 mm and at most 25 mm.

29. The component as claimed in one of claims 26 to 28, in which the elements (2a, 2b) are provided with edges (R) which bear one against the other in a
20 positively locking fashion in the closed state of the base body (2) and serve to receive at least one of the connection points (8a, 8b).

30. The component as claimed in one of claims 26 to
25 29, in which the elements (2a, 2b) are connected to one another in mechanical and/or materially joined fashion, in particular by welding, bonding, soldering, clinching, chamfering, caulking or by means of the integrally molded, in particular integrally injection
30 molded plastic (4).

31. The component as claimed in one of claims 26 to 30, in which the base body (2) is coated at least partially with plastic (4), in particular encapsulated
35 by injection molding or foam encapsulated.

32. The component as claimed in one of claims 26 to 31, in which the plastic (4) is embodied as a plastic structure (K).
- 5 33. The component as claimed in claim 32, in which the plastic structure (K) is embodied at least partially or completely as a separate module and can be inserted into the base body (2).
- 10 34. The component as claimed in claim 32 or 33, in which the plastic structure (K) is embodied as a plastic reinforcing structure, in particular as internal ribbing, and/or as a plastic guiding structure, in particular as a flow element.
- 15 35. The component as claimed in one of claims 26 to 34, in which the plastic (4) has a thickness (d) of 0.8 mm to 10 mm.
- 20 36. The component as claimed in one of claims 26 to 35, in which the plastic (4) has a varying thickness in certain areas.
- 25 37. The component as claimed in one of claims 26 to 36, in which the base body (2) is formed from a metal, lightweight metal or its alloys, in particular aluminum, magnesium, titanium or refined steel, and has a wall thickness of 0.4 mm to 2.0 mm.
- 30 38. The component as claimed in one of claims 26 to 37, in which the base body (2) has a varying wall thickness in certain areas.
- 35 39. The component as claimed in one of claims 26 to 38, in which the base body (2) is lined in certain areas with a physically or chemically foamed material with a varying wall thickness.

40. A use of a component (1) which is manufactured according to the method as claimed in one of claims 1 to 18, as an instrument panel beam in a vehicle with a duct (6), in particular with at least one air guiding
5 duct and/or one cable duct.

41. A use of a component (1) which is manufactured according to the method as claimed in one of claims 1 to 18, as a transverse beam in a vehicle, in particular
10 as a transverse beam between the A pillars of a vehicle or as a front-end component.

42. A use of a component (1) which is manufactured according to the method as claimed in one of claims 1 to 18, as a structure part in a vehicle, in particular
15 as a hollow structure part, as a longitudinal beam, sillboard, center tunnel structure, front-part longitudinal beam or transverse beam, vertical structure, A, B, C, D pillar or roof structure part.

20 43. A use of a component (1) which is manufacture according to the method as claimed in one of claims 1 to 18, as a structure part in a vehicle, in particular as a hollow structure part through which air from a
25 heating, cooling, air conditioning or venting device is guided.

44. A use of a component (1) which is manufactured according to the method as claimed in one of claims 1 to 18, as a transverse beam which is arranged under a
30 windshield in a motor vehicle, the duct (6) being an air guiding duct for guiding an air stream which is to be fed to the windshield and/or the side windows, and/or for heating a wiper blade support.